

REMARKS

In the Office Action mailed January 29, 2004, Claims 38-43, 48, 51, and 52 were rejected under 35 U.S.C. § 102(b) as being anticipated by Takeda et al. (U.S. Patent 5,228,100), Claims 53, 55, 57, 59, and 61 were rejected under 35 U.S.C. § 102(e) as being anticipated by Katsuyama et al. (U.S. Patent 6,035,061), Claims 44-47 and 49 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda et al., Claim 50 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda et al. in view of Tsuchiya et al. (U.S. Patent 5,857,034), Claim 56 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Katsuyama et al., Claims 58, 60, and 62 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda et al. in view of Katsuyama et al., and Claim 54 was objected to as being dependent upon a rejected base claim.

The foregoing objections and rejections are respectfully traversed.

In accordance with the foregoing Claims 38-53 and 55-62 have been amended and Claim 54 has been cancelled.

Claims 38-53 and 55-62 are pending and under consideration. No new matter is presented.

1. Claim Objections

The Examiner has objected to Claims 39, 40, 44-46, and 52 for informalities. We have amended Claims 39, 40, 44-46, and 52 to overcome the Examiner's objections and for consistency.

The Examiner has objected to Claim 54 as being dependent on a rejected base claim. We have cancelled Claim 54. The cancelled subject matter of Claim 54 has been included in amended Claim 53.

2. Claim Rejections

a. Claim Rejections under 35 U.S.C. § 102(b) as being anticipated by Takeda et al. and under 35 U.S.C. § 103(a) as being unpatentable over Takeda et al. –

The Examiner has rejected Claims 38-43, 48, 51, and 52 under 35 U.S.C. §102(b) as being anticipated by Takeda et al. The Examiner has rejected Claims 44-47 and 49 under 35 U.S.C. §103(a) as being unpatentable over Takeda et al.

Takeda et al. disclose “a document processing system or apparatus...comprising an image input means for inputting an image of a table form document having a table form or format with input/output field cells in which variable data items are to be written”. (Col. 2, lines 56-61). Takeda et al. further disclose that the “portions enclosed with the broken lines are of substantially an identical size are overlapped with each other...the corner portions are rounded to arcs...portions enclosed with the broken lines become small areas or regions...these patterns are judged to be associated with regions other than a line”. (Col. 14, lines 21-35).

b. Claim Rejections under 35 U.S.C. § 102(e) as being anticipated by Katsuyama et al. and under 35 U.S.C. § 103(a) as being unpatentable over Katsuyama et al.—

The Examiner has rejected Claims 53, 55, 57, 59, and 61 under 35 U.S.C. §102(e) as being anticipated by Katsuyama et al. The Examiner has rejected Claim 56 under 35 U.S.C. §103(a) as being unpatentable over Katsuyama et al.

Katsuyama et al. disclose a “title extracting method, comprising the steps of converting a document into image data so as to generate a document image, generating a character region including a black pixel connected region composed of connected black pixels in the document image, unifying at least one character region so as to generate a character string region including the character region, extracting a particular character string region of a plurality of a character string regions as a title region corresponding to attributes of a plurality of character string regions, and recognizing characters included in the title region”. (Col. 4, lines 29-33). Katsuyama et al. also disclose that “black pixels of the image that have been digitized and compressed are scanned corresponding to an eight-connection method...there are connections of black pixels, the same label value is assigned to these black pixels...black pixel connected regions are generated and the circumscribed rectangles (character rectangles) are obtained”. (Col. 9, lines 31-35).

c. Claim Rejections under 35 U.S.C. § 103(a) as being unpatentable over Takeda et al. in view of Tsuchiya et al. —

The Examiner has rejected Claim 50 under 35 U.S.C. §103(a) as being unpatentable over Takeda et al. in view of Tsuchiya et al.

Tsuchiya et al. disclose "character data not surrounded by borders, character data which is underlined and character data recorded inside borders rounded at space corners on register slips or chits conventionally used to be input to a computer". (Col. 1, lines 49-54). Tsuchiya et al. also disclose "portions of ruled lines are removed...ruled line data is included in a character input area formed as field information... a ruled border line is rounded...if a character area is set inside the ruled borders as an input area...the area is narrowed by a size S so that the area becomes difficult to use...so as to cover an area outside the rounded portion of the ruled line...thus removing a rounded corner portion of the ruled line..." (Col. 10, lines 56-67).

Takeda et al. in view of Tsuchiya et al. disclose "...an image input means for inputting an image of a table form document having a table form..." (see Col. 2, lines 56-61) having "...character data recorded inside borders rounded at space corners on register slips or chits conventionally used to be input to a computer..." (see Col. 1, lines 49-54).

d. Claim Rejections under 35 U.S.C. § 103(a) as being unpatentable over Takeda et al. in view of Katsuyama et al. –

The Examiner has rejected Claims 58, 60, and 62 under 35 U.S.C. §103(a) as being unpatentable over Takeda et al. in view of Katsuyama et al.

Takeda et al. in view of Katsuyama et al. disclose "...an image input means for inputting an image of a table form document having a table form..." (see Col. 2, lines 56-61) including "...black pixel connected regions are generated and the circumscribed rectangles (character rectangles) are obtained..." (see Col. 9, lines 31-35).

3. Patentably Distinguishing the Present Invention over any combination of Takeda et al., Katsuyama et al., and Tsuchiya et al.

The present invention, patentably distinguishes over Takeda et al. and any combination of Takeda et al., Katsuyama et al., and Tsuchiya et al., as it includes the determining of a round corner region even when at least of the first and the second oblique elements are unclear or blurred. Further, the present invention includes extracting a cell by the unit extracting the

cell changes in a fixed order of low density – high density – low density from outside of the corner area.

Claims 38-53 and 55-62 have been amended for consistency and to patentably distinguish the present invention over the cited references.

In contrast the foregoing references relied upon, Claim 38 recites (in part):

“A table image processing device comprising:

...

a unit finding a potential match of a round corner region...

...

the unit finding the potential match of the round corner region decides, in a case that the first oblique element and the second oblique element overlap, the part as the potential match of the round corner, even when at least one of the first and the second oblique elements are unclear; and the unit deciding a round corner part decides the part as the round corner in a case that the pixel density at a corner of a cell extracted by the unit extracting the cell changes in a fixed order of low density – high density – low density from outside of the corner area.”

Claim 39 recites (in part):

“A table image processing device comprising:

...

a unit finding a potential match of a round corner region...

...

wherein the unit finding the potential match of the round corner region extracts the oblique element by extracting a first oblique element commencing from a terminal of a longitudinal line, and a second oblique element commencing from a terminal of a lateral line, even when at least one of the first and the second oblique elements are unclear; and

...

wherein the unit deciding a round corner part decides the part as the round corner in the case that the pixel density at a corner of a cell extracted by the unit extracting the cell changes in a fixed order of low density – high density – low density from outside of the corner area.”

Claim 40 recites (in part):

“A table image processing device comprising:

...

a unit finding a potential match of a round corner region...

...

wherein the unit finding the potential match of the round corner region extracts the oblique element by extracting a first oblique element

commencing from a terminal of a longitudinal line, and a second oblique element commencing from a terminal of a lateral, even when at least one of the first and the second oblique elements are unclear; and

...

wherein the unit deciding a round corner part decides the part as the round corner in the case that the pixel density at a corner of a cell extracted by the unit extracting the cell changes in a fixed order of low density – high density – low density from outside of the corner area."

Claim 51 recites (in part):

"A memory medium storing a program for implementing in a computer a table image processing device, wherein the program comprises:

...

finding a potential match of a round corner region by extracting an oblique line which commences from a terminal of a line found by the line extracting process, and finding a potential match of the round corner region based on the oblique line, even when the oblique line is unclear;

...

deciding a round corner part decides the part as the round corner in a case that the pixel density at a corner of a cell extracted by the unit extracting the cell changes in a fixed order of low density – high density – low density from outside of the corner area."

Claim 52 recites (in part):

"A memory medium storing a program for implementing in a computer a table image processing device, the program comprising:

...

finding a potential match of a round corner region by extracting an oblique line which commences from a terminal of a line found by the line extracting process, and finding a potential match of the round corner region based on the oblique line, even when the oblique line is unclear;

...

wherein deciding a round corner part decides the part as the round corner in the case that the pixel density at a corner of a cell extracted by the unit extracting the cell changes in a fixed order of low density – high density – low density from outside of the corner area."

Claim 53 recites (in part):

"A table image processing device comprising:

...

a unit finding a ruled line by using the longitudinal lines and the lateral lines extracted from the unit extracting lines as the potential match of the ruled line and for deciding whether the potential match of the ruled line is a ruled line or not, even when the ruled line is unclear...

...."

Claim 57 recites (in part):

“A table image processing device comprising:

...

a unit finding a ruled line by using the longitudinal lines and the lateral lines extracted from the unit extracting lines as the potential match of the ruled line and for deciding whether the potential match of the ruled line is a ruled line or not, even when the ruled line is unclear...

...”

Claim 59 recites (in part):

“A memory medium storing program for implementing in a computer of a table image processing device, the program comprising:

...

finding a ruled line by using the longitudinal lines and the lateral lines extracted from a unit extracting lines as the potential match of the ruled line and for deciding whether the potential match of the ruled line is a ruled line or not, even when the ruled line is unclear...

...”

Claim 61 recites (in part):

“A table image processing method comprising:

...

finding a ruled line by using the longitudinal lines and the lateral lines extracted as the potential match of the ruled line and for deciding whether the potential match of the ruled line is a ruled line or not, even when the ruled line is unclear...

...”

All independent Claims 38-40, 51-53, 57, 59, and 61 patentably distinguish over the cited references relied upon.

In addition, dependent Claims 41-50, 55, 56, 58, 60, and 62 recite patentably distinguishing features of their own. For example, claim 41 recites “...wherein the unit deciding a round corner part, after finding the round corner part based on the pixel density change, finds whether the regulation of the ruled line arrangement exists or not, and when the regulation of the ruled line arrangement exists, the unit deciding a round corner part decides another corner of the input image as a round corner”.

Withdrawal of the foregoing rejections of Claims 38-53 and 55-62 is respectfully requested.

4. Argument Summary –

None of the cited references including Takeda et al., Katsuyama et al., and Tsuchiya et al. disclose or suggest the foregoing features of the present invention.

None of the cited references including Takeda et al., Katsuyama et al., and Tsuchiya et al. disclose or suggest determining a round corner region even when at least of the first and the second oblique elements are unclear or blurred. Further, none of the cited references including Takeda et al., Katsuyama et al., and Tsuchiya et al. disclose or suggest extracting a cell by the unit extracting the cell changes in a fixed order of low density – high density – low density from outside of the corner area.

5. Concluding Remarks –

The present invention is not obvious over or anticipated by Takeda et al. or over any combination of Takeda et al., Katsuyama et al., and Tsuchiya et al. because the references alone and collectively fail to teach or describe the above features of the present invention.

Withdrawal of the foregoing rejections is respectfully requested. Further, allowance of Claims 38-53 and 55-62 is respectfully requested.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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